

THE LIFE HISTORY OF *SIGNETA TYMBOPHORA* (MEYRICK  
AND LOWER) (LEPIDOPTERA: HESPERIIDAE:  
TRAPEZITINAE)

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**Abstract**

The early stages of the dingy shield skipper, *Signeta tymbophora* are described and illustrated. Brief field observations are also provided.

**Introduction**

The Australian skipper genus *Signeta* Waterhouse and Lyell contains just two described species, *flammeata* (Butler) and *tymbophora* (Meyrick and Lower), found along the south-eastern Great Dividing Range. The genus is allied to *Toxidia* Mabille, both being notable for well-defined sexual dimorphism in the adults. *Signeta* is characterized by a prominent, broadly ovoid sex-brand on the upperside of the male forewing (Fig. 9), while that of *Toxidia* is variable in width, but decidedly linear and obliquely placed.

*Signeta flammeata* is relatively common and found in cool to temperate sclerophyll woodlands and subalpine tussock grasslands of southern Australia. *Signeta tymbophora* is a smaller and darker species, locally confined to temperate and subtropical rainforests. It ranges from Mt Dromedary in southern New South Wales to the Bunya Mts in southern Queensland. There are less than a dozen recorded localities for *S. tymbophora*. Contributing factors to this apparent rarity are its small size, cryptic colouration and a habitat preference for sunlit glades, deep within forest gullies.

Common and Waterhouse described the egg and final instar of *S. tymbophora* but other details of the larva and pupa have remained unknown. The following description is recorded from seven eggs obtained from a female collected at Narara, New South Wales. Subsequently, four adults (three males and a female) were reared from larvae fed with common grasses, confined indoors, under ambient temperature and humidity. Field observations of the larva and pupa of *S. tymbophora* are also provided.

Food plant. Probably *Entolasia marginata* (R.Br.) Hughes (Poaceae) and possibly *Carex hubbardii* Nelves (Cyperaceae).

Egg (Fig. 1). Diameter 0.85 mm, dome-shaped, slightly tapered dorsally with 12 or 13 vertical ribs, displaced near the micropyle, pale greenish-white when first laid, changing in 2 days to pearl-coloured with deep-pink dorsal and lateral markings.

Larva (Figs 2-5). 1st instar (Fig. 2): length 1.8 mm; head shiny black, with pale setae on frons and dorsal area; prothoracic plate reddish brown; body pale orange-yellow with light brown dorsal and dorsolateral lines on posterior segments. 2nd to 5th instars (5th instar, Figs 3, 4): head brown with dark brown lateral, dorsolateral and dorsal areas, and covered with numerous small concavities and associated setae; body greyish-brown to reddish brown, green between segments and ventrally, and with brownish longitudinal banding in dorsal and dorsolateral areas and covered with short clubbed setae ringed with radiating dark pattern on anal segment (Fig. 5).

Pupa (Figs 6-8). Length 15 mm; short, stout, tapered posteriorly, light brown with scattered dark brown markings covering abdominal segments and wing-cases, and with paired dark brown markings on anterior of thorax and on frons (pupal cap); setae (Fig. 7) simple, unbranched, coiled on cremaster.

### Notes

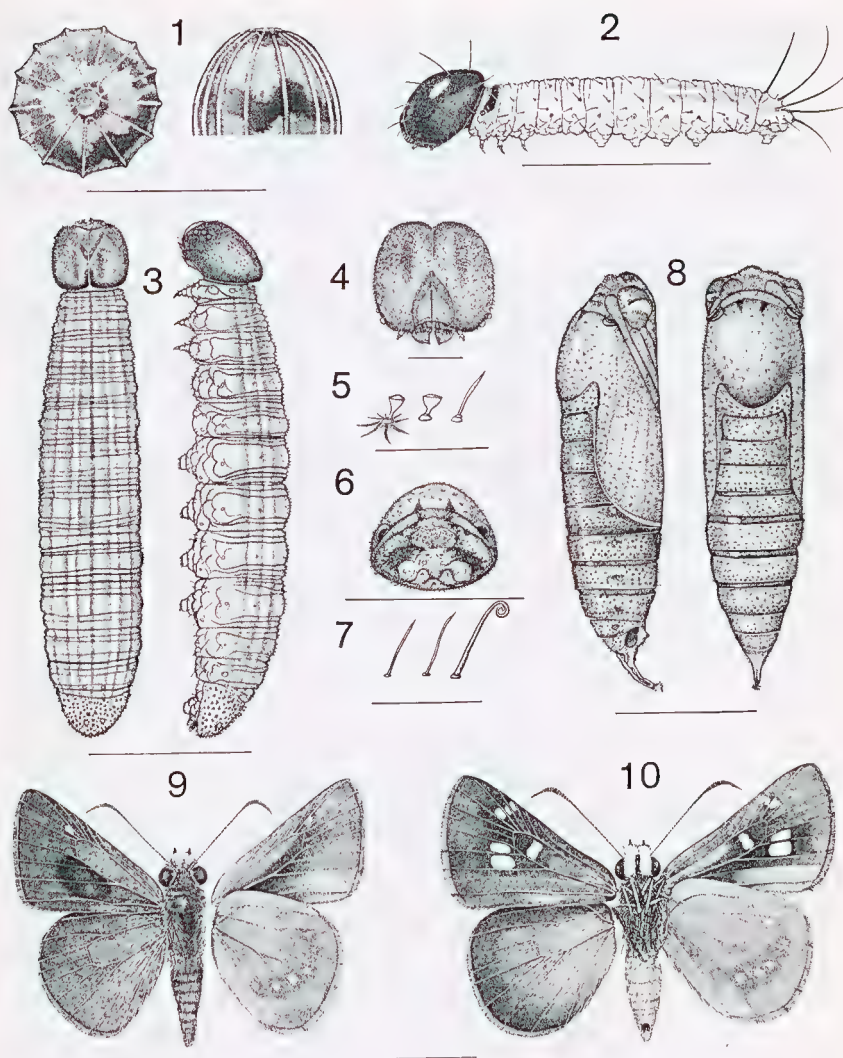
Eggs were obtained by confining a female in a net-covered pot plant containing various cultivated soft grasses. Oviposition was mainly on grass stems and leaf litter at the base of the grass. The eggs hatched after 13 days, and the egg shell was eaten by the newly emerged larva. The first instar larval shelter was made from a single leaf of a grass blade rolled into a tube and secured with silk. The mature larva made shelters from two or three grass blades joined together. Final larval shelters were made in *Eucalyptus* leaf litter and other debris. Larval development was slow, lasting 40-42 weeks at Newcastle, but no obvious diapause was observed. Pupal duration was approximately 12 days, adults emerging from mid-December to mid-January. This was at least six weeks earlier than the flight period at Narara, probably due to indoor rearing. Variable emergence of adults from the same egg-batch is unusual in the Trapezitinae.

*Signeta tymbophora* is probably only single-brooded in the southern part of its range (pers. observ.). There are not enough data on the flight times of northern populations. Adults have mainly been recorded in December and January, although Brown (1983) has recorded this species in the Manning River district in October.

In structure and biology both species of *Signeta* are very similar. The posterior of the pupa of *S. tymbophora* is very tapered, and the pupal head (and adult head) is comparatively large, reminiscent of *Anisynta* Lower. The morphology of the larva and pupa indicates that *Signeta* is nevertheless closely allied to *Toxidia*.

### Field observations

A mature larva matching the above description and a pupa of *S. tymbophora* were collected (by M.M.) from *Carex hubbardii* growing



Figs 1-10. Life history of *Signeta tymbophora* from Narara, N.S.W.: (1) dorsal and lateral view of egg; (2) 1st instar larva; (3) mature larva; (4) final instar larval head; (5) posterior, body and head setae of mature larva; (6) front view of pupa; (7) pupal setae and cremaster hook; (8) pupa; (9) adult male, upperside and underside; (10) adult female, upperside and underside. Scale lines: Figs 1, 2, 4, 5, 7 = 1 mm; Figs 3, 6, 8 = 5 mm; Figs 9, 10 = 10 mm.

in rainforest on the Dorrigo Plateau. The larva was found on the leaves of this sedge in the late afternoon. The pupa was upright in a loose shelter, deep within the tussock. The larva failed to complete its development but an adult male emerged from the pupa on 5 January 1990. At Narara females were observed (by A.A.) fluttering low around 'bordered panic' (*Entolasia marginata*) and depositing eggs on leaf litter and debris at the base of the grass.

### Acknowledgements

Mr P. Evans and Mr N. Dwyer kindly identified *Carex hubbardii* and Ms B. Wiecek, Sydney Herbarium, identified *Entolasia marginata*.

### References

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